REMARKS

The issues outstanding in the Office Action mailed June 18, 2002, are the "Information Disclosure Statement," the objection to the Abstract and rejections under 35 U.S.C. §§112 and 103. Reconsideration of these issues, in view of the following discussion, is respectfully requested.

Information Disclosure Statement

Applicants wish to make sure the record is clear that a proper Information Disclosure Statement was filed on June 19, 2001, providing to the USPTO the citation from the International Search Report in the corresponding International application. The Office Action, at page 2, argues that the listing of references in the specification is "not a proper Information Disclosure Statement." Applicants did not intend to provide an Information Disclosure Statement in this manner. Instead, the portion of the specification referred to by the Examiner is simply a discussion of the background of the invention, and while it references various background materials, it is not seen that an Information Disclosure Statement is needed. Moreover, with respect to the extent that the paragraph at the top of page 2 intends to imply that applicants have somehow not complied with the duty of disclosure, and it is clear that the requirements set forth in 37 C.F.R. §1.98(b), while embodying the PTO's preferred method of submission of references, are not needed in order to comply with the overall duty of candor and duty of disclosure, set forth in 37 C.F.R. §1.56.

Specification

The Examiner has objected to the Abstract, as being overly long. The Abstract has been reformatted in condition for U.S. practice, and withdrawal of this objection is respectfully requested.

Rejections Under 35 U.S.C. §112

Claims 1-20 have been rejected under 35 U.S.C. §112, second paragraph. Reconsideration of this rejection is respectfully requested.

Various grammatical typographical changes have been made to the claims, in order to place them in condition more usual for U.S. practice. The scope of the claims has not been changed by these amendments, either literally or for purposes of the doctrine of equivalents. It is submitted that the bulk of the rejections are thus obviated, and withdrawal thereof is respectfully requested.

On page 3 of the Office Action, it is argued that the term "semicrystalline" is indefinite, as it is not defined in the claim or specification. However, it is respectfully submitted the term "semicrystalline" is an understood term of art, which would have clear meaning to one of ordinary skill in the art. Thus, the term does not need to be defined in the claims of specification, and the claims are clearly defninte. Attention is directed to the attached literature showing the conventionality of the term "semicrystalline" and its understood meaning in the art. Withdrawal of this portion of the rejection is therefore respectfully requested.

Rejection Under 35 U.S.C. §103

Claims 1, 2, 8-11, 13, 15, 16 and 18 have been rejected under 35 U.S.C. §103 over Witschard '188 taken with Röber et al. '426. Reconsideration of this rejection is respectfully requested.

At page 5 of the Office Action, the Examiner interprets the claim term "ABC triblock copolymer" referring to "any polymer that consists of 3 types of monomer blocks." While this is arguably correct, the Office Action then goes on to conclude, the sentence bridging pages 5 and 6, that the reference methyl methacrylate-butadiene-styrene copolymer, disclosed at column 7, lines 6-16, is "corresponding to an ABC copolymer." Indeed, while this may also arguably be true (applicants have no opinion) to the extent this sentence implies that the references MBS copolymer is a triblock copolymer, this is incorrect. The MBS polymer is a made by polymerization of styrene and butadiene to make an elastomeric particle (a core) and subsequent polymerization of methyl methacrylate, making a shell. This impact modifier, known as a core-shell copolymer, is unrelated to a triblock polymer. Note that, at column 7, lines 12-20, patentees teach that the MBS polymer is manufacturered as a graft polymer prepared by polymerizing methyl methacrylate in the presence of a polybutadiene or polybutadiene-styrene trunk polymer rubber. Thus, even if the butadiene styrene trunk rubber is a diblock polymer, which is not entirely clear from the patent disclosure, the result would be that methyl methacrylate is grafted onto both butadiene and styrene blocks, still resulting in a core-shell arrangement, with methyl methacrylate forming a shell around the styrene butadiene core, grafted to both materials. Thus, to the extent that the first six lines of page 6 of the Office Action suggest that the MBS polymer of Witschard is, or for that matter Witschard

suggests, an ABC triblock copolymer, this is incorrect. Thus, the argument in the sentence bridging pages 6 and 7 of the application, that polymerization of methyl methacrylate in the presence of the polybutadiene-styrene polymer would result in the methyl methacrylate change grafted onto butadiene and/or styrene blocks, while arguably true, does not result in an ABC triblock polymer as claimed.

Moreover, the "block polymer component" taught at column 7 of Witschard for combination with the MBS polymer and the vinyl halide homopolymer or copolymer also does not suggest the use of an ABC block copolymer with the A block linked to the B block, and the B block linked to the C block. The portion of patentees' disclosure entitled "Block Polymer Component" principally directs one of ordinary skill in the art to a diblock copolymer. For example, patentees teach that this component "is a thermoplastic block elastomer wherein a major portion of the monomer units are derived from (1) a mono-alkenyl-substituted aromatic compound . . . and (2) a conjugated hydrocarbon alkadiene..." See column 7, lines 58-64. Thus, this disclosure suggests a diblock copolymer. Then, at column 9, lines 18-21, patentees explicitly state that the "aforementioned block polymers can be linear block polymers composed of two homopolymeric segments or blocks (termed a diblock polymer) or three (termed a triblock polymer) or more homopolymeric segments. However, despite this offhand mention of triblock polymers, no specific examples are given until the footnote to Table III, at column 17 and 18 of the patent. In all of the examples, with the exception of examples 17-20, diblock polymers of styrene butadiene are employed. Example 17 employs a triblock polymer of styrene and isoprene. Examples 18 and 20 employ a triblock polymer of styrene and butadiene, but these are control examples and not in accordance with the invention. Example 19 employs a triblock

polymer of styrene and butadiene. Thus, even considering the control examples, the triblock polymers exemplified in these examples are not ABC triblock polymers, but ABA triblocks.

The situation is not dissimilar to that of *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In Jones, a reference disclosed, generically, substituted ammonium salts, and gave examples of alkylamines, diethylamines, morphylene and isopropylamine. Thus, the examples were of a primary amine non-ether compound, a secondary amine non-ether, a secondary amine cyclic ether, and an iso-primary amine non-ether. Applicans in Jones claimed a particular substituted ammonium salt, which was a primary amine and an ether. The court found that the applicants' claim was not obvious over this reference, holding that, the despite the generic disclosure which arguably encompassed all substituted ammonium salts, such a broad genus failed to suggest every single possible salt therein. Thus, considering the representative examples and preferred disclosure of the patent, in order to determine what was actually taught by the generic term, the court found insufficient motivation to direct one of ordinary skill in the art to prepare a salt which was both a primary amine and an ether, since none of the examples were of such type compounds.

By analogy, in the present situation, the patent discloses block polymers generically andengages in substantial discussion of diblock polymers. The patent exemplifies only two triblock polymers; however, these triblock polymers are ABA polymers, and not ABC polymers. Thus, the preparation of ABC polymers, as presently claimed, is simply not suggested in the patent.

Röber et al., '426, cited by the Examiner in combination with Witschard, does nothing to remedy these deficiencies. Röber, cited in the Office Action principally for its teaching of a

multilayer pipe used to transport fuels, discloses that such pipe is made of a layer of polyamide, and a layer of polyvinylidene fluoride acrylate copolymer blend. See column 1, lines 56-end. Patentees further teach that the polyamides can be toughened with modifiers including "random or block copolymers," see column 2, lines 62-65. However, such block polymers are combined with the polyamide layer (component I) and are not taught for combination with the acrylate copolymer and polyvinylidene fluoride mixture. The patent moreover teaches that the acrylate copolymer combined with the polyvinylidene fluoride is other than a block material (the term "basic building block" at column 4 refers to monomer units, as is evident from columns 3 and 4). Thus, this reference fails to remedy the deficiencies of the primary reference in failing to disclose an ABC triblock copolymer. Withdrawal of this rejection is therefore accordingly respectfully requested.

Claim 3 has also been rejected under 35 U.S.C. §103 over Witschard taken with Rober and Lorek '939. Reconsideration of this rejection is also respectfully requested. The deficiencies of the previous two cited references are discussed above. Lorek also fails to teach or suggest a triblock copolymer instead merely teaches a mixture of fluorinated polymer with a binder of a "polymer A". Polymer A may be a poly(methyl) methacrylate derivative. See, column 2, line 14. The use of a ABC triblock copolymer is simply not suggested.

Claims 4 and 5 have also been rejected under 35 U.S.C. §103 over Witschard taken with Rober and Lorek. In view of the discussion above, it can be seen that this combination of references fails to suggest significant features of applicants' claim 1 and, thus, also fails to suggest these dependent claims.

Claims 6 and 7 have also been rejected over Witschard taken with Rober and Bayard et

al. '534. Reconsideration of this rejection is also respectfully requested. Bayard is directed to an initiation system for an ionic polymerization of methacrylic monomers, acrylic monomers and optionally non-acrylic vinyl comonomers. See column 1, lines 8-11. The initiation system can be used to prepare triblock or star-shaped polymers, see column 2, line 52-55 and column 4, lines 1-4. The patent generically describes the production of a triblock copolymers of ABC type, for example, at column 6, lines 6-13. It is not seen that patentees actually exemplify the preparation of an ABC triblock polymer, instead exemplifying ABA triblock copolymers. In any event, patentees in no way suggest that the triblock copolymer could be combined with a fluoropolymer such as PVDF, and used to form a tube. Thus, there is insufficient motivation for one of ordinary skill in the art to combine the disclosure of the triblock copolymers therein with, for example, the materials of Witschard or the tube of Rober. Patentees nowhere suggest the utility of the materials therein with fluoroppolymers, much less the use in combination with fluoropolymers to produce tubes. Thus, there is insufficient reason to substitute the triblock polymers (much less ABC triblocks) for any component of any of the other references, and it is submitted that this rejection also fails to provide the fundamental teaching of the present invention. Withdrawal of this rejection is also respectfully requested.

Claims 12 and 14 have also been rejected under 35 U.S.C. § 103 over Witschard taken with Rober and Tsutsumi et al. '908. Reconsideration of this rejection is also respectfully requested. Tsutsumi discloses styrene butadiene copolymers which apparently may be block copolymers or random. See column 3, lines 24-33. However, patentees do not teach an ABC triblock copolymer, and thus add nothing to the deficiencies discussed above. Withdrawal of this rejection is also respectfully requested.

Claim 17 has been rejected under 35 U.SC. §103 Witschard taken with Röber and Drzewinski '070. Reconsideration of this rejection is also respectfully requested. Drzewinski is cited solely for its teaching of treatment of poly(methylacrylate) blends with polycarbonate. However, since the patent does not disclose triblock copolymers, it does nothing to remedy the deficiencies discussed above. Withdrawal of this rejection is also respectfully requested.

Claims 19 and 20 have been rejected under 35 U.S.C. §103 over Witschard taken with Röber et al. and Lorek. These references have been discussed above, and it is submitted that withdrawal of this rejection is also appropriate.

In conclusion, it is submitted that the references, whether taken singly or in combination, fail to teach the presently claimed invention, and withdrawal of the rejections is respectfully requested.

The claims application are respectfully submitted to be in condition for allowance. However, if the Examiner has any questions or comments, he is cordially invited to telephone the undersigned at the number below.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,

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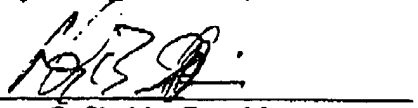

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

1. (Amended) ~~Tube~~ A tube having in ~~its~~ a radial direction, from ~~the~~ inside to the outside, ~~a so-called~~ an inner layer ~~based on a fluororesin (or fluoropolymer) and intended to come into contact with a flowing fluid characterized in that the inner layer is formed from a blend~~ comprising a blend of a semicrystalline thermoplastic fluororesin and an ABC triblock copolymer~~, the~~ with three blocks A, B and C being linked together in this order, each block being either a homopolymer or a copolymer obtained from two or more monomers, the A block being linked to the B block and the B block to the C block by means of a covalent bond or of an intermediate molecule linked to ~~one of these blocks~~ each adjacent block via a covalent bond, ~~and to the other block via another covalent bond, and in that~~ and wherein:

- the A block is compatible with the fluororesin,
- the B block is incompatible with the fluororesin and is incompatible with the A block, and
- the C block is incompatible with the fluororesin, the A block and the B block.

2. (Amended) ~~Tube~~ A tube according to claim 1~~, characterized in that~~ which is a bilayer tube and comprises an outer later made of polyamide or of a polyamide/polyolefin blend ~~having~~ with a polyamide matrix. the inner layer and the polyamide or polyamide-matrix layer being fastened together.

3. (Amended) ~~Tube~~ A tube according to claim 1~~, characterized in that it~~ which is a bilayer tube and comprises an outer layer made of polyamide or of a polyamide/polyolefin blend ~~having~~ with a polyamide matrix, the inner layer and the polyamide or polyamide-matrix layer being fastened together by the addition of a functional acrylic compound to the blend of the inner layer.

4. (Amended) ~~Tube~~ A tube according to claim 1~~, characterized in that it~~ which is a trilayer tube and comprises an outer layer made of polyamide or of a polyamide/polyolefin blend ~~having~~ with a polyamide matrix, the inner layer and the polyamide or polyamide-matrix layer being fastened together by an adhesion binder placed between them.

5. (Amended) ~~Tube~~ A tube according to claim 1~~, characterized in that it~~ which is a multilayer tube and comprises a layer made of polyamide or of a polyamide/polyolefin blend ~~having~~ with a polyamide matrix, the inner layer and the polyamide or polyamide-matrix layer being fastened together by a succession of intermediate layers, each of which is fastened to its adjacent layers.

6. (Amended) ~~Tube~~ A tube according to claim 1~~, characterized in that~~ wherein the ABC triblock copolymer contains, as by-products of its synthesis, a BC diblock copolymer and ~~possibly~~ optionally homopolymer.

7. (Amended) ~~Tube~~ A tube according claim 1~~, characterized in that~~ wherein the ABC triblock copolymer contains, as by-products of its synthesis, an AB diblock copolymer and ~~possibly some~~ optionally A homopolymer.

8. (Amended) ~~Tube~~ A tube according to claim 1~~, characterized in that the blend of~~ wherein the inner layer contains a dispersed electrically conductive carbon black filler in an amount sufficient to give this inner layer a surface resistivity of less than or equal to 10^9 $\Omega/\square$ cm^2 ~~and preferably less than or equal to 10^6 $\Omega/\square$~~.

9. (Amended) ~~Tube~~ A tube according to claim 1~~, characterized in that the blend of~~ wherein the semicrystalline thermoplastic fluororesin and ~~the~~ ABC triblock copolymer ~~, possibly with the by products of its synthesis,~~ blend contains at least 50% ~~and preferably from 70 to 97%~~ by weight of semicrystalline thermoplastic fluororesin~~(s)~~ and the balance (to 100%) by weight of the triblock copolymer of number-average molecular mass (M_n) greater than or equal to 20,000 $g.mol^{-1}$ ~~and preferably between 50,000 and 200,000 $g.mol^{-1}$, possibly with its by products,~~ consisting:

- 20 to 93 ~~and preferably 30 to 70~~ parts by weight of A sequences,
- 5 to 68 ~~and preferably 10 to 40~~ parts by weight of B sequences,
- 2 to 65 ~~and preferably 5 to 40~~ parts by weight of C sequences,

the percentages being calculated with respect to the total weight of fluororesin~~(s)~~ with the block copolymer ~~and possibly its by products,~~ without taking into account in these percentages the optional presence of other additives.

10. (Amended) ~~Tube~~ A tube according to claim 1~~, characterized in that~~ wherein the fluororesin is ~~chosen from:~~

- a ~~homopolymers~~ homopolymer ~~and~~ or ~~copolymers~~ copolymer of vinylidene fluoride (VF2) ~~preferably containing at least 50% by weight of VF2~~ and at least one other fluoromonomer, ~~such as chlorotrifluoroethylene (CTFE), hexafluoropropylene (HFP), trifluoroethylene (VF3) and or tetrafluoroethylene (TFE);~~
- homopolymers and copolymers of trifluoroethylene (VF3);
- copolymers, ~~and especially~~ or terpolymers~~, combining the residues~~ of chlorotrifluoroethylene (CTFE), tetrafluoroethylene (TFE) or hexafluoropropylene (HFP) units and/or ethylene, and ~~possibly~~ optionally VF2 and/or VF3 units.

11. (Amended) ~~Tube~~ A tube according to claim 10~~, characterized in that~~ wherein the fluororesin is poly(vinylidene fluoride) (PVDF).

12. (Amended) ~~Tube~~ A tube according to claim 1~~, characterized in that~~ wherein the B block has a glass transition temperature $T_{g(B)}$, measured by differential thermal analysis, ~~ranging from~~ of -100°C to -50°C.

13. (Amended) ~~Tube~~ A tube according to claim 1~~, characterized I that~~ wherein the B block is ~~chosen from~~ a ~~polydienes~~ polydiene~~, especially polybutadiene, polyisoprene and their random copolymers, or else from polydienes, especially polybutadiene, polyisoprene and their random copolymers, that are~~ optionally partially or completely hydrogenated.

14. (Amended) ~~Tube~~ A tube according to claim 1, ~~characterized in that~~ wherein the C block has a glass transition temperature $T_{g(C)}$ or a melting point $T_{m(C)}$ greater than the $T_{g(B)}$ of the B block.

15. (Amended) ~~Tube~~ A tube according to claim 1, ~~characterized in that~~ wherein the A block is ~~chosen from homopolymers~~ a homopolymer ~~and~~ or ~~copolymers~~ copolymer of an alkyl (alkyl)~~acrylates~~ acrylate ~~for example methyl methacrylate (MMA) and/or methyl or ethyl acrylate and/or those deriving from vinyl acetate~~.

16. (Amended) ~~Tube~~ A tube according to claim 1~~, characterized in that~~ wherein the A block is poly(methyl methacrylate) (PMMA).

17. (Amended) ~~Tube~~ A tube according to claim 16, ~~characterized in that~~ wherein the PMMA is syndiotactic and its glass transition temperature $T_{g(A)}$, measured by differential thermal analysis, is from + 120°C to + 140°C.

18. (Amended) ~~Tube~~ A tube according to claim 1~~, characterized in that~~ wherein the ABC triblock is poly(methyl methacrylate-*b*-butadiene-*b*-styrene).

19. (Amended) ~~Quadrilayer~~ A quadrilayer tube according to claim 1~~, characterized by~~

having the ~~following~~ structure:

PA/binder/fluoropolymer/fluoropolymer + ABC triblock + electrically conductive carbon black.